



1/18

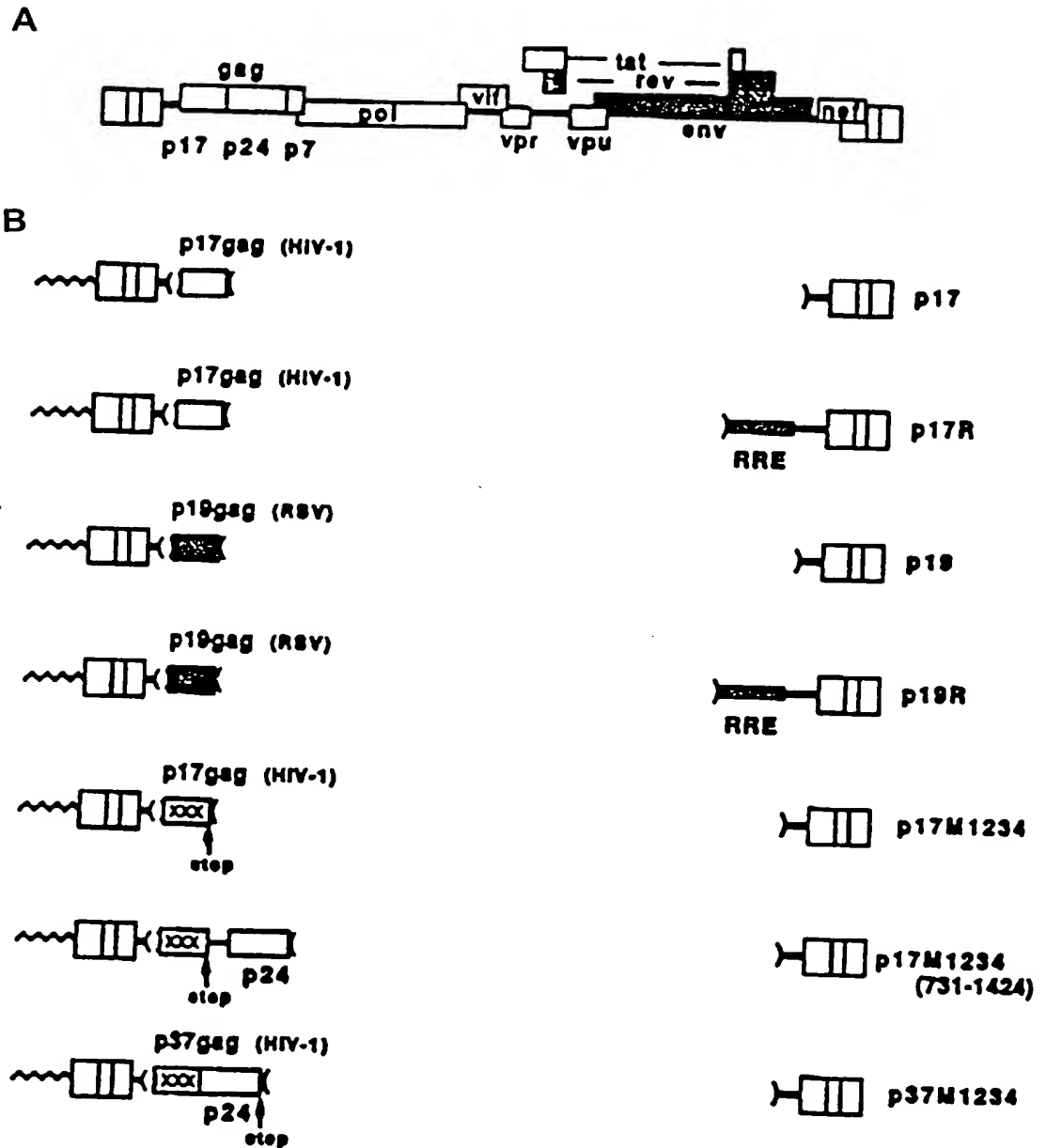


Figure 1

C

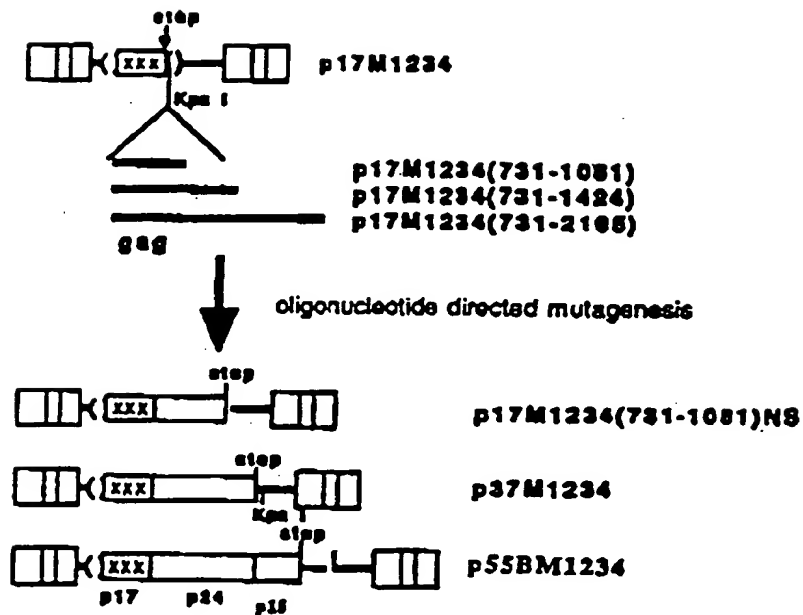
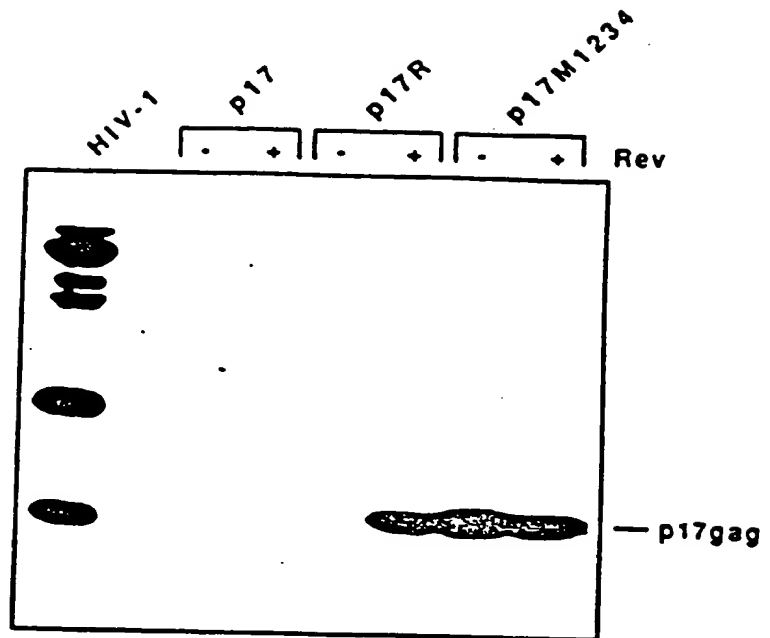


Figure 1 continued

3/18

A



B

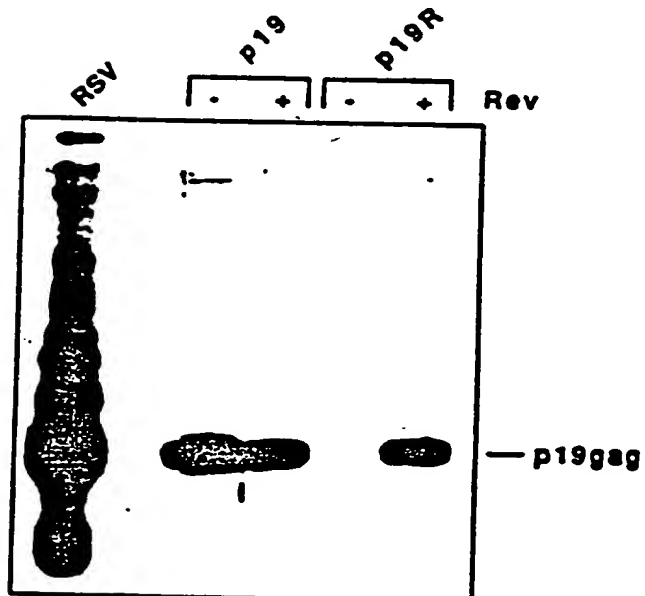
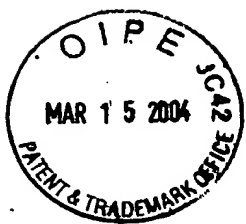
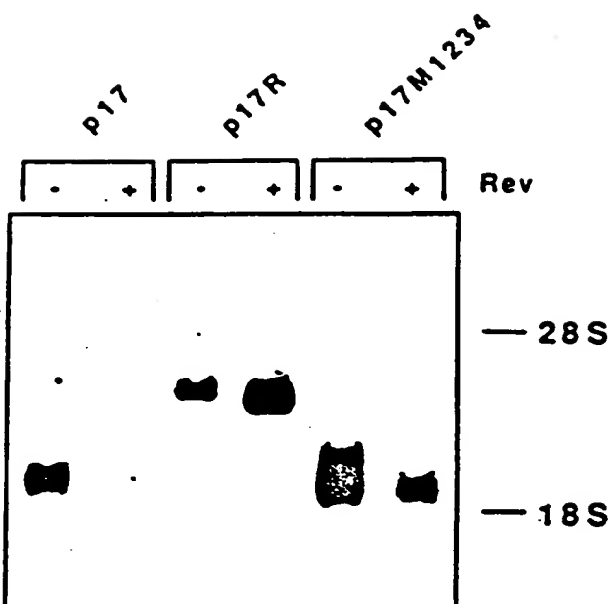


Figure 2



4/18

A



B

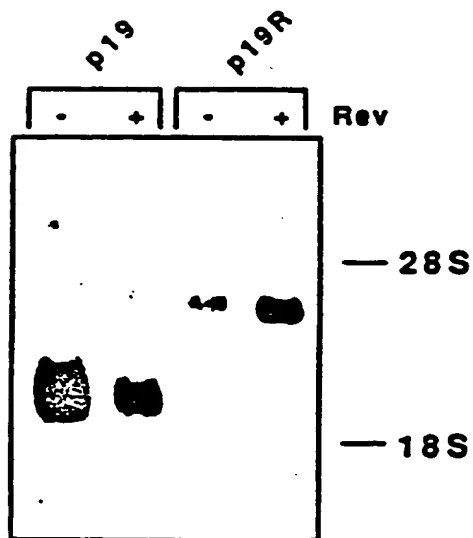


Figure 3



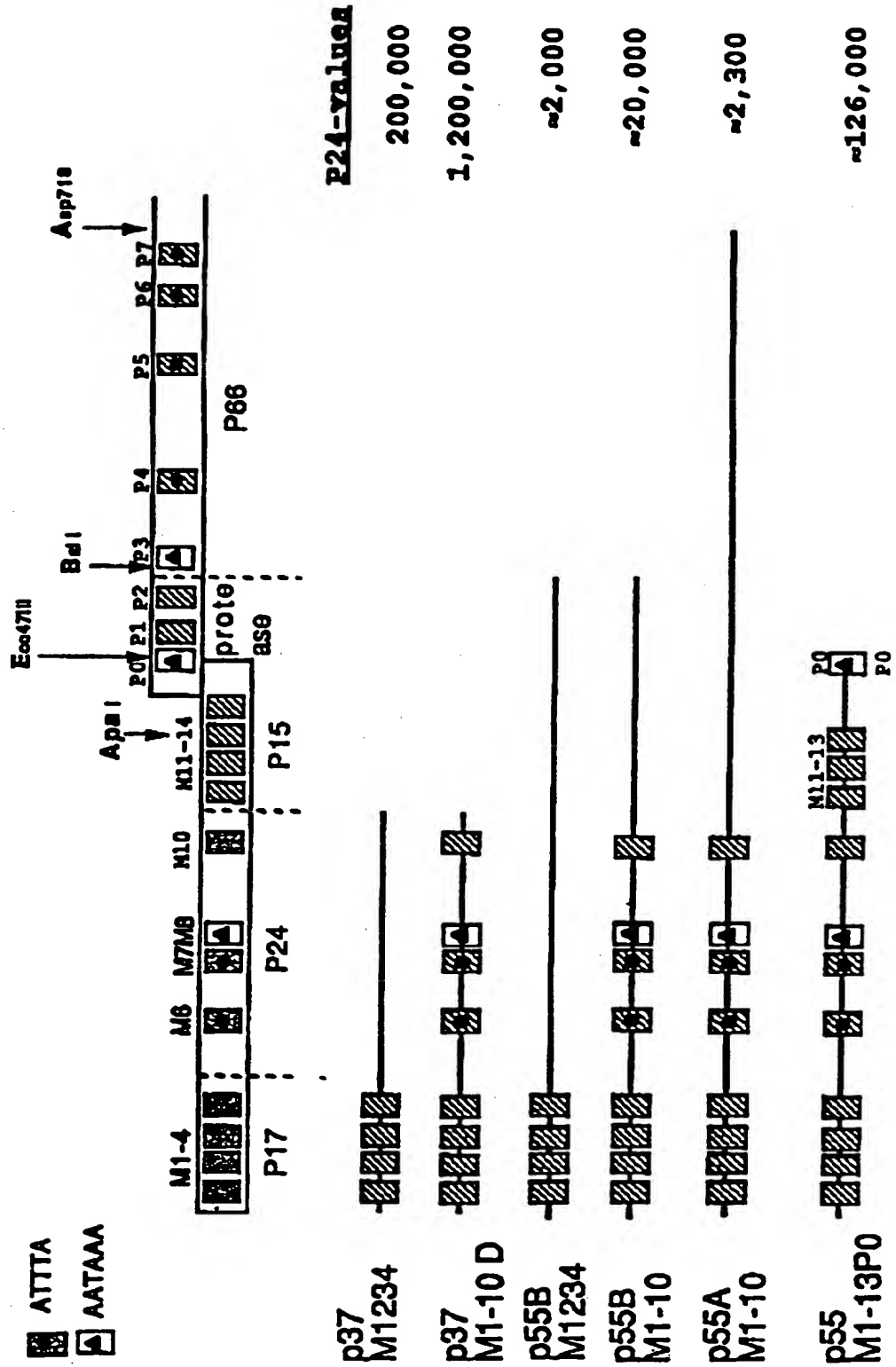


Figure 6

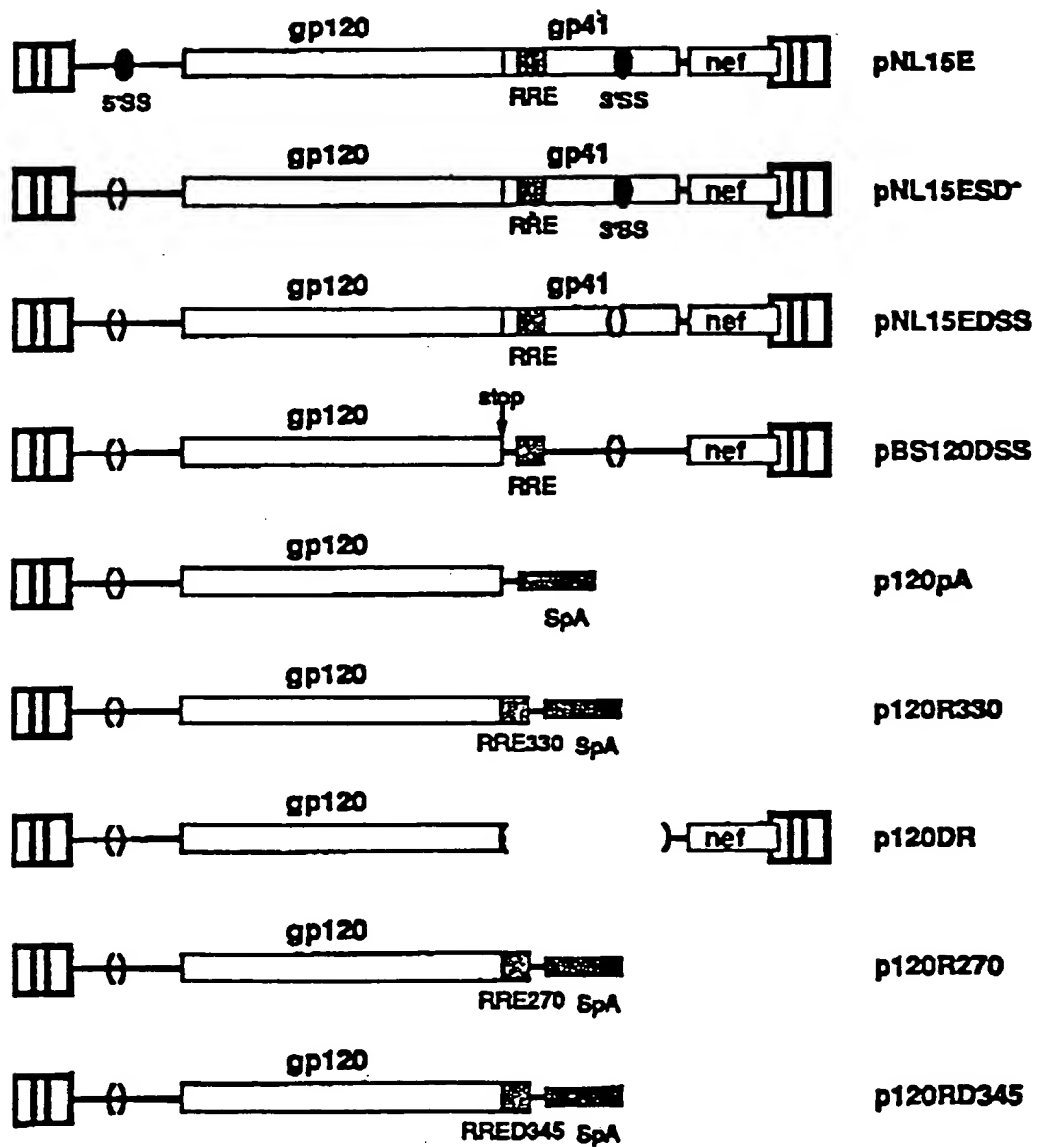
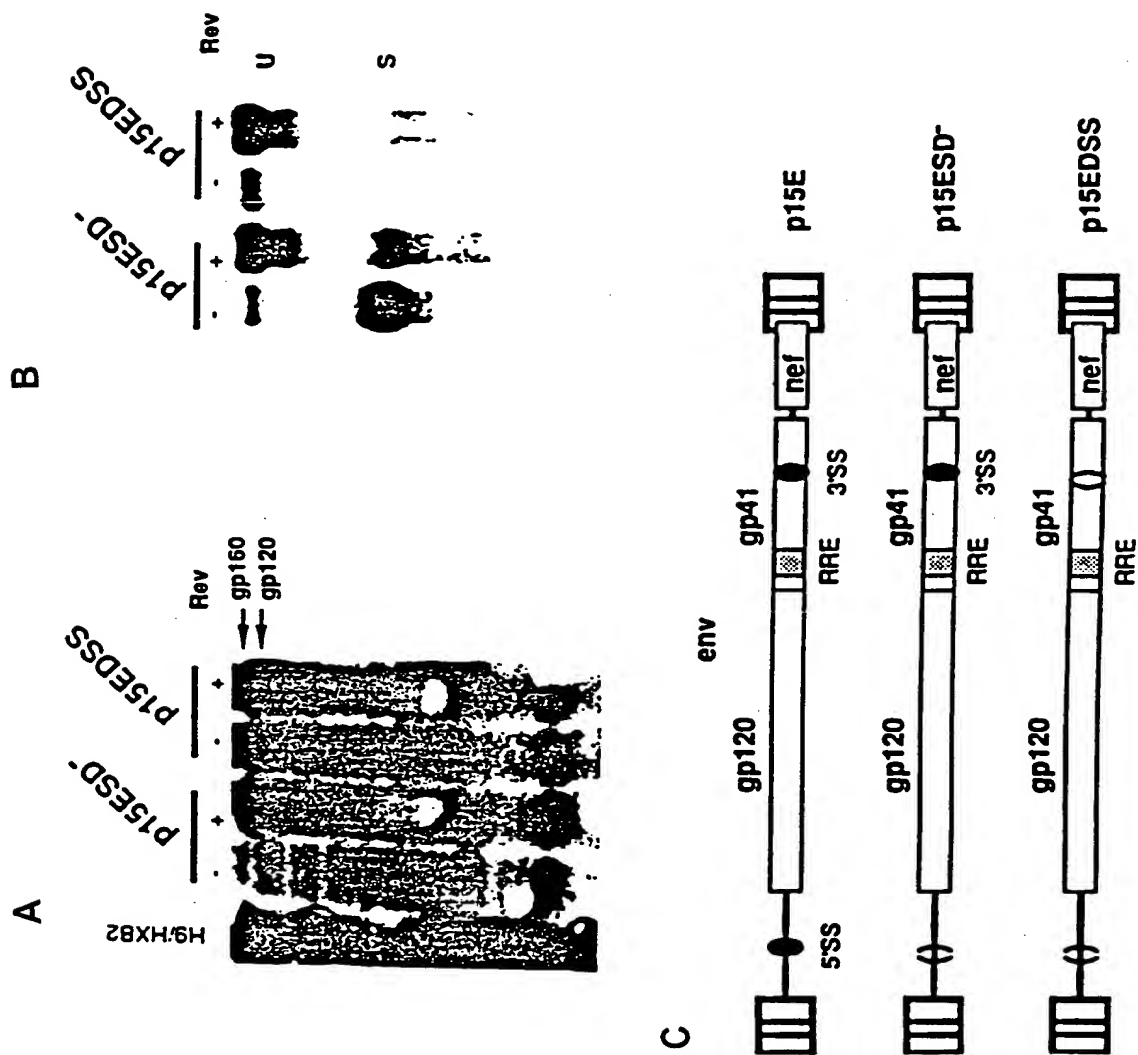


Figure 7

Figure 8





9/18

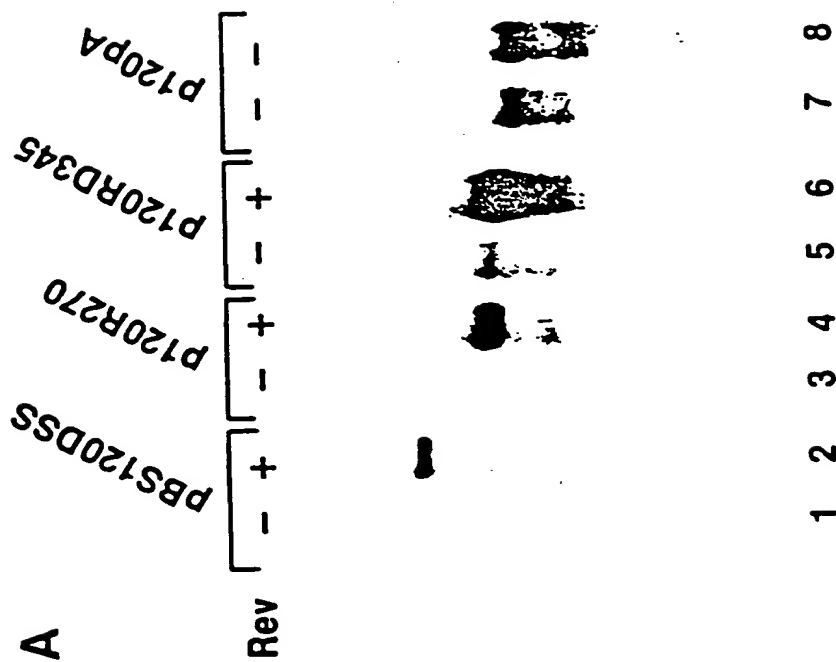


Figure 9



10/18

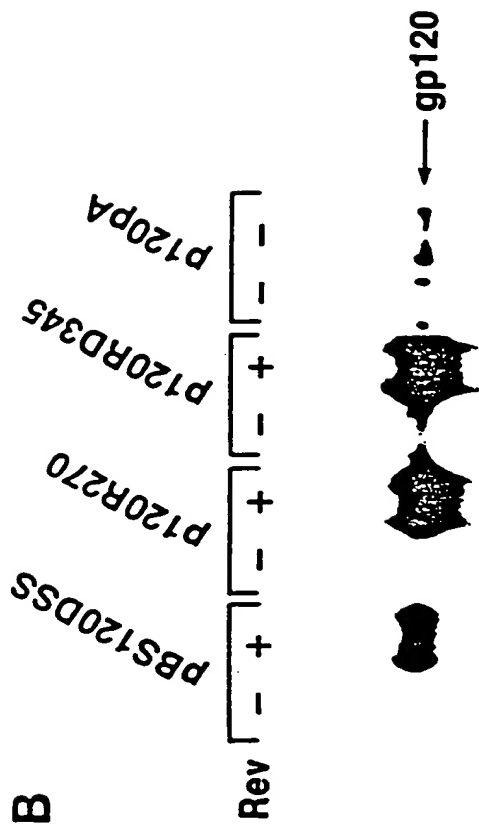
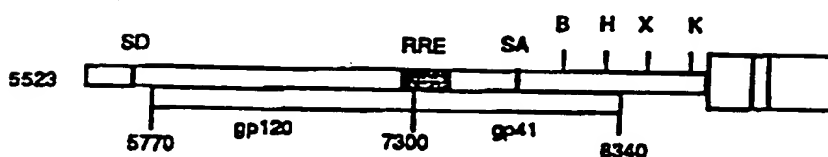


Figure 9



11/18

**Identification of INS regions within the
env mRNA using the p19 vector.**











| FRAGMENT SIZE | | INS EFFECT | |
|---------------|-----|--|---------|
| A | 276 |  7684-7859 | none |
| B | 234 |  7684-7884, 7927-7959 | none |
| C | 323 |  7595-7884, 7927-7959 | 10 X |
| D | 128 |  7939-8066 | none |
| E | 478 |  7939-8418 | 10 X |
| F | 362 |  8200-8581 | > 100 X |
| G | 330 |  7266-7595 | 3-5X |
| E | 668 |  5523-6190 | 10 X |

Figure 10



12/18

Identification of INS regions within the
env mRNA using the p37M1-10D vector.

(fig 5 env,
formerly fig D)

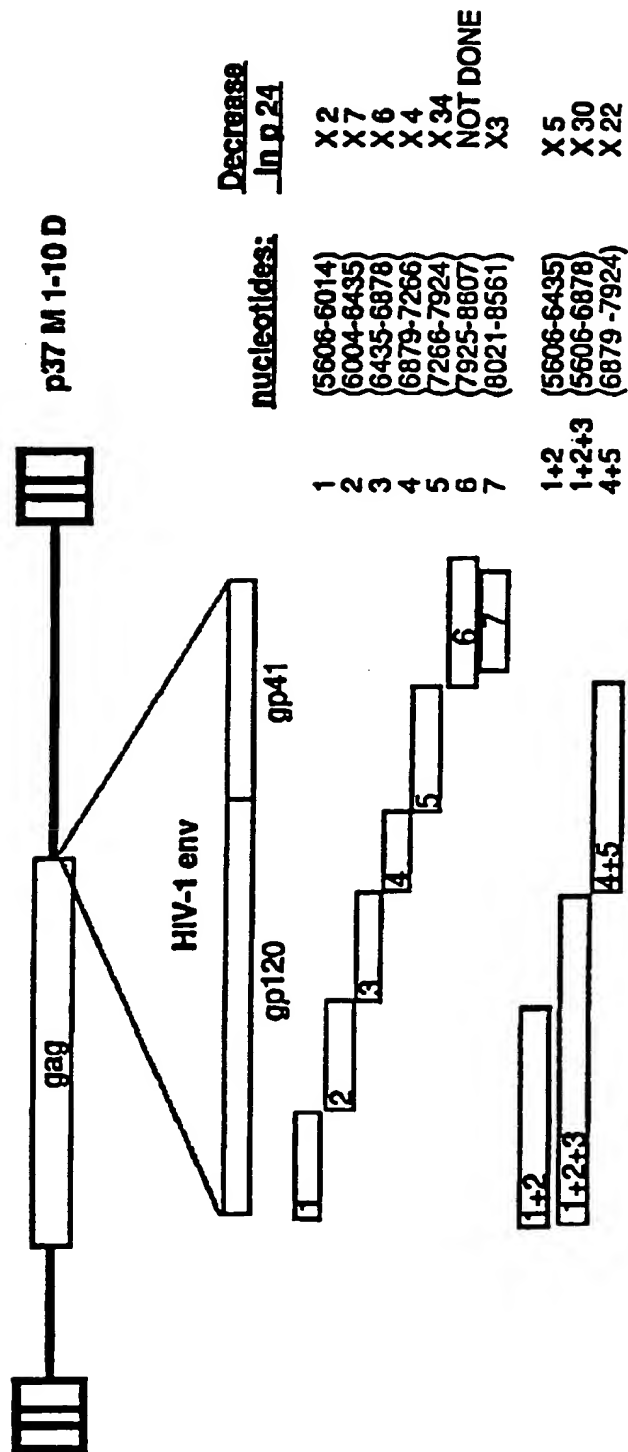


Figure 11

Elimination of negative effects of CRS

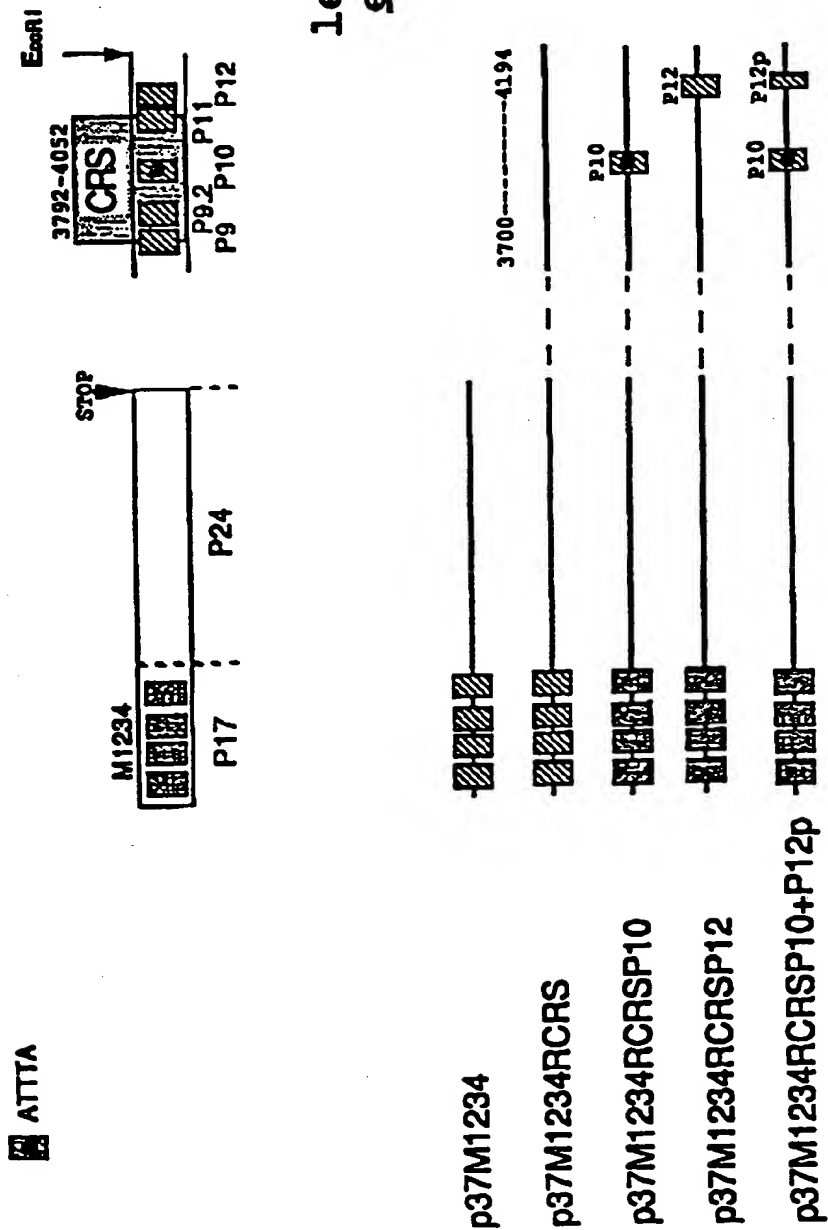


Figure 12



POINT MUTATIONS ELIMINATING THE NEGATIVE EFFECTS OF CRS IN THE pol REGION
(nucleotides 3700-4194) (SEQ ID NO:127)

GGTACCAGCACACAAAGGAATTGGAGGAATGMAAAGTAGATAAATTAGTCAGTGCTGGAAATCAGGAAGTACTATTTT
TAGATGGAATAGATAAGGCCCAAGATGAACATGAGAAATATCACAGTAATTGGAGAGCAATGGCTAGTGATTTTAACCTG
CCACCTGTAGTAGCAAAAGAAANTAGTAGCCAGCTGTGATAAATGTCAGCTAAAGGAGAGCCATGCCATGGACAAGTAGA
CTGTAGTCCAGGAATATGGCAACTAGATTGTACACATTTAGAGGAAAAGTTATCTGGTAGCAGTTTCATGTAGCCAGTG
g g c c g c c g g g g g
GATATATAGAACGAGAGTATTCCAGCAGAAACAGGGCAGCAACACAGCATATTTCTTTTAAANTTAGCAGGAAGATGG
CCAGTAAAAACAATACATACTGACAAATGGCAGCAATTTCCACCGTGCTACGGTTAGGGCCGCTGTTGGTGGCGGGGAAT
c g c a c t
CAAGCAGGAATTTGG

Figure 13

COMPLETE NUCLEOTIDE SEQUENCE OF p37M-1-10D
 AND
 AMINO ACID SEQUENCE OF p37^{gag} PROTEIN (SEQ ID NO:129)

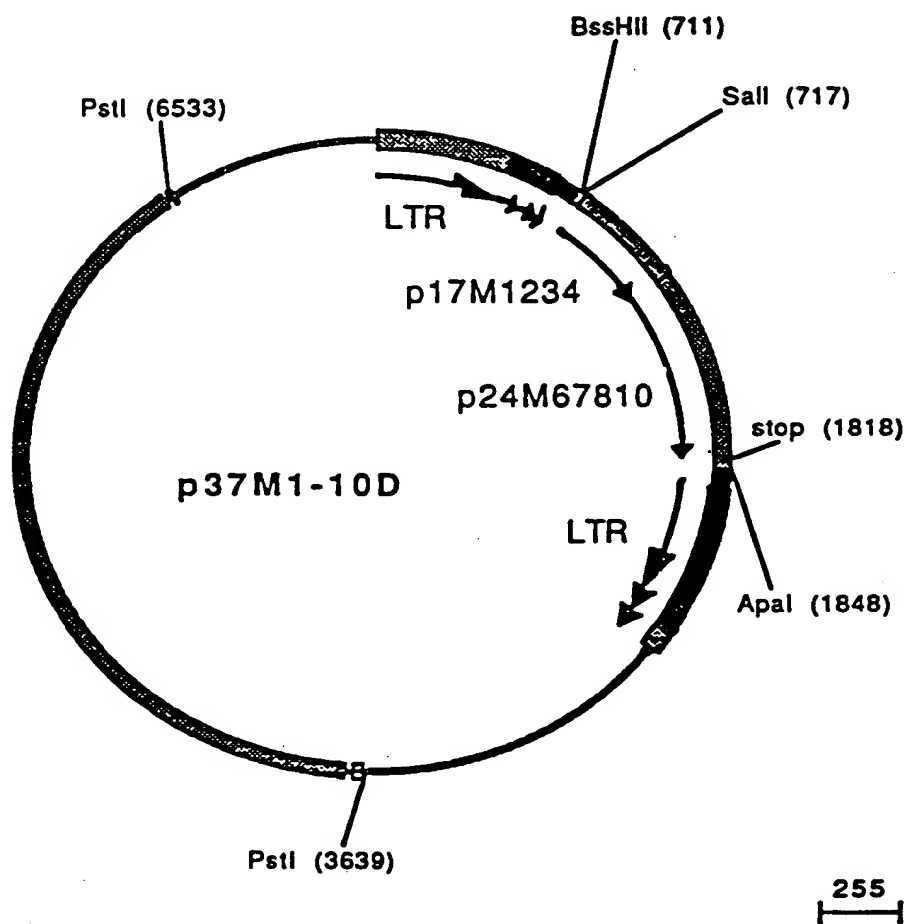


Figure 14



1 TGG AAGGGCT AATTTGGTCC CAAAAAGAC AAGAGATCCT TGATCTGTGG ATCTACCACA CACAAGGCTA
 71 CTTCCTGAT TGGCAGAACT ACACACCAGG GCCAGGGATC AGATATCCAC TGACCTTTGG ATGGTGCTTC
 141 AAGTTAGTAC CAGTTGAACC AGAGCAAGTA GAAGAGGCCA AATAAGGAGA GAAGAACAGC TTGTTACACC
 211 CTATGAGCCA GCATGGGATG GAGGACCCGG AGGGAGAAGT ATTAGTGTGG AAGTTTGACA GCCTCTAGC
 281 ATTCGTGAC ATGGCCCGAG AGCTGGATCC GGAGTACTAC AAAGACTGCT GACATCGAGC TTTCTACAAG
 351 GGACTTTCCG CTGGGGACTT TCCAGGGAGG TGTGGCCTGG GCGGGACTGG GGAGTGGCGA GCCCTCAGAT
 421 GCTACATATA AGCAGCTGCT TTTTGCTGT ACTGGGTCTC TCTGGTTAGA CCAGATCTGA GCCTGGGAGC
 491 TCTCTGGCTA ACTAGGGAAC CCACTGCTTA AGCCTCAATA AAGCTGCCT TGAGTGTCTA AAGTAGTGTG
 561 TGCCCGTCTG TTGTGTGACT CTGGTAACTA GAGATCCCTC AGACCCTTTT AGTCAGTGTG GAAATCTCT
 631 AGCAGTGGCG CCCGAACAGG GACTTGAAAG CGAAAGTAAA GCCAGAGGAG ATCTCTCGAC GCAGGACTCG
 BssHII (711)
 701 GCTTGCTGAAGCGCGCTCGACAGAGATGGGTGCGAGAGCGTCAGTATTAAGCGGGGAGAATTAGATCGATGG
 1▶ Met Gl yAl aArgAl aSer Val LeuSer Gl yGl yGl uLeuAspArgTrp
 777 GAAAAATTCGGTTAAGGCCAGGGGGAAGAAGTACAAGCTAAAGCACATCGTATGGGCAAGCAGGGAGCTAG
 17▶ Gl uLysI leArgLeuArgProGl yGl yLysLysLysTyrLysLeuLysHisI leVal TrpAl aSer ArgGl uLeuG
 853 AACGATTCGAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGTAGACAAATACTGGGACAGCTACAACCATC
 42▶ l uArgPheAl aVal AsnProGl yLeuLeuGl uThr Ser Gl uGl yCysArgGl nI leLeuGl yGl nLeuGl nProSe
 929 CCTTCAGACAGGATCAGAGGAGCTTCGATCACTATACAACACAGTAGCAACCCCTCTATTGTGTGCACCAGCGGATC
 67▶ r LeuGl nThr Gl ySer Gl uGl uLeuArgSer LeuTyrAsnThr Val Al aThr LeuTyrCysVal I HisGl nArgI le
 1005 GAGATCAAGGACACCAAGGAAGCTTTAGACAAGATAGAGGAAGAGCAAAACAAGTCCAAGAAGAAGGCCAGCAGG
 93▶ Gl uI leLysAspThr Lys Gl uAl aLeuAspLysI leGl uGl uGl uGl nAsnLys Ser LysLysLysAl aGl nGl nA
 1081 CAGCAGCTGACACAGGACACAGCAATCAGGTCAGCCAAAATTACCTATAGTCAGAATCCAGGGGCAATGGT
 118▶ l aAl aAl aAspThr Gl yHisSerAsnGl nVal Ser Gl nAsnTh rProI leVal Gl nAsnI leGl nGl yGl nMet Va
 1157 ACATCAGGCCATATCACCTAGAAGCTTTAAATGCATGGGTAAAAGTAGTAGAAGAGAAGGCTTTTCAGCCAGAAAGTG
 11▶ I HisGl nAl aI leSer ProArgThr LeuAsnAl aTrpVal LysVal Val Gl uGl uLysAl aPheSer ProGl uVal
 1233 ATACCCATGTTTTTCAGCATTATCAGAAGGAGCCACCCACAGGACCTGAACAGCATGTTGAACACCGTGGGGGGAC
 37▶ I leProMet PheSer Al aLeuSer Gl uGl yAl aThr ProGl nAspLeuAsnThr Met LeuAsnThr Val Gl yGl yH
 1309 ATCAAGCAGCCATGCAATGTATAAAGAGACCATCAATGAGGAAGCTGCAGAATGGGATAGAGTGCATCCAGTGCA
 62▶ l sGl nAl aAl aMet Gl nMetLeuLysGl uThr I leAsnGl uGl uAl aAl aGl uTrpAspArgVal I HisProVal I Hi
 1385 TGCAGGGCCTATTGCACCAGGCCAGATGAGAGAACCAAGGGGAAGTGACATAGCAGGAAGTACTAGTACCCCTCAG
 87▶ sAl aGl yProI leAl aProGl yGl nMetArgGl uProArgGl ySerAspI leAl aGl yThr Thr Ser Thr LeuGl n
 1461 GAACAAATAGGATGGATGACAAATAATCCACCTATCCAGTAGGAGAGATCTACAAGAGGTGGATAATCCTGGGAT
 113▶ Gl uGl nI leGl yTrpMet ThrAsnAsnProProI leProVal Gl yGl uI leTyrLysArgTrpI leI leLeuGl yL
 1537 TGAACAAGATCGTGAGGATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGA
 138▶ euAsnLysI leVal ArgMet TyrSer ProThr Ser I leLeuAspI leArgGl nGl yProLysGl uProPheArgAs

Figure 14 continued



1613 CTATGTAGACCGGTTCTATAAACTCTAAGAGCTGAGCAAGCTTCACAGGAGGTAAAAAATTGGATGACAGAAACC
163▶ pTyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnGluValLysAsnTrpMetThrGluThr

1689 TTGTTGGTCCAAATGCGAACCCAGATTGTAAGACCATCTGAAGGCTCTCGGCCAGCGGTACACTAGAAGAAA
189▶ LeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLysAlaLeuGlyProAlaAlaThrLeuGluGluMet

1765 TGATGACAGCATGTCAGGGAGTAGGAGGACCCGGCCATAAGGCAAGAGTTTTGTAGGGATCCACTAGTTCTAGACT
214▶ eIMetThrAlaCysGlnGlyValGlyGlyProGlyHisLysAlaArgValLeu stop (1818) XbaI (1838)

Apal (1848)

1841 CGAGGGGGGG CCCGGTACCT TTAAGACCAA TGACTTACAA GGCAGCTGTA GATCTTAGCC ACTTTTTTAA

1911 AGAAAAGGGG GGAAGTGAAG GGCTAATTCA CTCCCAAAGA AGACAAGATA TCCTTGATCT GTGGATCTAC

1981 CACACACAAG GCTACTTCCC TGATTGGCAG AACTACACAC CAGGGCCAGG GGTCAGATAT CCACTGACCT

2051 TTGGATGGTG CTACAAGCTA GTACCAGTTG AGCCAGATAA GGTAGAAGAG GCCAATAAAG GAGAGAACAC

2121 CAGCTTGTTA CACCCTGTGA GCCTGCATGG AATGGATGAC CCTGAGAGAG AAGTGTTAGA GTGGAGGTTT

2191 GACAGCCGCC TAGCATTTCA TCACGTGGCC CGAGAGCTGC ATCCGGAGTA CTTCAAGAAC TGCTGACATC

2261 GAGCTTGCTA CAAGGGACTT TCCGCTGGGG ACTTTCAGG GAGGCGTGGC CTGGGCGGGA CTGGGGAGTG

2331 GCGAGCCCTC AGATGCTGCA TATAAGCAGC TGCTTTTTGC CTGTACTGGG TCTCTCTGGT TAGACCAGAT

2401 CTGAGCCTGG GAGCTCTCTG GCTAACTAGG GAACCCACTG CTTAAGCCTC AATAAAGCTT GCCTTGAGTG

2471 CTTCAAGTAG TGTGTGCCCG TCTGTTGTGT GACTCTGGTA ACTAGAGATC CCTCAGACCC TTTTAGTCAG

2541 TGTGGAATAA CTCTAGCACC CCCAGGAGG TAGAGGTTGC AGTGAGCCAA GATCGCGCCA CTGCATTCCA

2611 GCCTGGGCAA GAAACAAGA CTGTCTAAAA TAATAATAAT AAGTTAAGGG TATTAATAT ATTTATACAT

2681 GGAGGTCATA AAAATATATA TATTTGGGCT GGGCGCAGTG GCTCACACCT GCGCCCGGCC CTTTGGGAGG

2751 CCGAGGCAGG TGGATCACCT GAGTTTGGGA GTTCCAGACC AGCCTGACCA ACATGGAGAA ACCCTTCTC

2821 TGTGTATTT TAGTAGATT TATTTTATGT GTATTTTAT CACAGGTATT TCTGAAAAAC TGAAACTGTT

2891 TTTCCTCTAC TCTGATACCA CAAGAATCAT CAGCACAGAG GAAGACTTCT GTGATCAAA GTGGTGGGAG

2961 AGGGAGGTTT TCACCAGCAC ATGAGCAGTC AGTTCTGCCG CAGACTCGGC GGGTGTCTTT CGGTTCAGTT

3031 CCAACACCGC CTGCCTGGAG AGAGGTCAGA CCACAGGGTG AGGGCTCAGT CCCCAGACA TAAACACCCA

3101 AGACATAAAC ACCCAACAGG TCCACCCCGC CTGCTGCCCA GGCAGAGCCG ATTCACCAAG ACGGGAAATTA

3171 GGATAGAGAA AGAGTAAGTC ACACAGAGCC GGCTGTGCGG GAGAACGGAG TTCTATTATG ACTCAAAATCA

3241 GTCTCCCAA GCATTGCGGG ATCAGAGTTT TTAAGGATAA CTTAGTGTGT AGGGGGCCAG TGAGTTGGAG

3311 ATGAAAGCGT AGGGAGTCGA AGGTGTCTTT TTGCGCCGAG TCAGTTCTTG GGTGGGGGCC ACAAGATCGG

3381 ATGAGCCAGT TTATCAATCC GGGGGTGCCA GCTGATCCAT GGAGTGCAGG GTCTGCAAAA TATCTCAAGC

3451 ACTGATTGAT CTTAGGTTTT ACAATAGTGA TGTTACCCCA GGAACAATTT GGGGAAGGTC AGAATCTTGT

3521 AGCCTGTAGC TGCATGACTC CTAAACCATTA ATTTCTTTTT TGTTTTTTTT TTTTATTTTT TGAGACAGGG

PstI (3639)

3591 TCTCACTCTG TCACCTAGGC TGGAGTGCAG TGGTGCAATC ACAGCTCACT GCAGCCCTTA GAGCGGCGGC

3661 CACCGCGGTG GAGCTCCAAT TCGCCCTATA GTGAGTCGTA TTACAATTCA CTGGCGGTG TTTTACAACG

3731 TCGTGACTGG GAAAACCTG GCGTTACCCA ACTTAATCGC CTTGCAGCAC ATCCCTTTT CGCCAGCTGG

3801 CGTAATAGCG AAGAGGCCG CACCGATCGC CTTCCCAAC AGTTGCGCAG CTGGAATGGC GAATGGCGGG

3871 AAATTGTAAA CGTTAATATT TTGTTAAAA TCGCGTTAAA TTTTGTATA ATCAGCTCAT TTTTAAACCA

3941 ATAGGCCGAA ATCGGCAAAA TCCCTTATAA ATCAAAAGAA TAGACCGAGA TAGGGTTGAG TGTGTTCCA

4011 GTTTGGAACA AGAGTCCACT ATTAAGAAGC GTGGACTCCA ACGTCAAAGG GCGAAAAACC GTCTATCAGG

4081 GCGATGGCCC ACTACGTGAA CCATCACCCT AATCAAGTTT TTTGGGGTCG AGGTGCGCTA AAGCACTAAA

4151 TCGGAACCTT AAAGGGAGCC CCGGATTTAG AGCTTGACGG GGAAGCCGG CGAACGTGGC GAGAAAGGAA

4221 GGAAGAAAG CGAAAGGAGC GGGCGCTAGG GCGCTGGCAA GTGTAGCGGT CACGCTGCGC GTAACCAACA

4291 CACCGCCGCG GCTTAATGCG CCGTACAGG GCGCGTCCA GGTGGCACTT TTCGGGGAAA TGTGCGCGGA

4361 ACCCTATTT GTTTATTTTT CTAAATACAT TCAATATGT ATCCGCTCAT GAGACAATAA CCCTGATAAA

Figure 14 continued



4431 TGCTTCAATA ATATTGAAAA AGGAAGAGTA TGAGTATTCA ACATTTCCGT GTCGCCCTTA TTCCCTTTTT
4501 TCGGGCATT TGCCTTCCTG TTTTGTCTCA CCCAGAAACG CTGGTGAAG TAAAAGATGC TGAAGATCAG
4571 TTGGGTGCAC GAGTGGGTTA CATCGAACTG GATCTCAACA GCGGTAAGAT CCTTGAGAGT TTTGCCCCCG
4641 AAGAACGTTT TCCAATGATG AGCACTTTTA AAGTTCTGCT ATGTGGCGCG GTATTATCCC GTATTGACGC
4711 CGGGCAAGAG CAACTCGGTC GCCGCATACA CTATTCTCAG AATGACTTGG TTGAGTACTC ACCAGTCACA
4781 GAAAAGCATC TTACGGATGG CATGACAGTA AGAGAAATTAT GCAGTGCTGC CATAACCATG AGTGATAACA
4851 CTGCGGCCAA CTTACTTCTG ACAACGATCG GAGGACCGAA GGAGCTAACC GCTTTTTTGC ACAACATGGG
4921 GGATCATGTA ACTCGCCTTG ATCGTTGGGA ACCGGAGCTG AATGAAGCCA TACCAAACGA CGAGCGTGAC
4991 ACCACGATGC CTGTAGCAAT GGCAACAACG TTGCGCAAAC TATTAACTGG CGAACTACTT ACTCTAGCTT
5061 CCCGCAACA ATTAATAGAC TGGATGGAGG CGGATAAAGT TGCAGGACCA CTTCTGCGCT CGGCCCTTCC
5131 GGCTGGCTGG TTTATTGCTG ATAAATCTGG AGCCGGTGAG CGTGGGTCTC GCGGTATCAT TGCAGCACTG
5201 GGGCCAGATG GTAAGCCCTC CCGTATCGTA GTTATCTACA CGACGGGGAG TCAGGCAACT ATGGATGAAC
5271 GAAATAGACA GATCGCTGAG ATAGGTGCTT CACTGATTAA GCATTGGTAA CTGTCAAGACC AAGTTTACTC
5341 ATATATACTT TAGATTGATT TAAAACITCA TTTTAAATTT AAAAGGATCT AGGTGAAGAT CCTTTTGTAT
5411 AATCTCATGA CCAAAATCCC TTAACGTGAG TTTTCGTTCC ACTGAGCGTC AGACCCCGTA GAAAAGATCA
5481 AAGGATCTTC TTGAGATCCT TTTTTCTGCG GCGTAATCTG CTGCTTGCAA AAAAAAAAC CACCGCTACC
5551 AGCGGTGGTT TGTTTGCCGG ATCAAGAGCT ACCRACTCTT TTTCCGAAGG TAAGTGGCTT CAGCAGAGCG
5621 CAGATACCAA ATACTGTCTT TCTAGTGTAG CCGTAGTTAG GCCACCACTT CAAGAACTCT GTAGCACCGC
5691 CTACATACCT CGCTCTGCTA ATCCTGTGTA CAGTGGCTGC TGCCAGTGGC GATAAGTCGT GTCTTAACCG
5761 GTTGGAATCA AGACGATAGT TACCGGATAA GGCGCAGCGG TCGGGCTGAA CGGGGGGTTT GTGCACACAG
5831 CCCAGCTTGG AGCGAACGAC CTACACCGAA CTGAGATACC TACAGOGTGA GCTATGAGAA AGCGCCACGC
5901 TTCCCGAAGG GAGAAAGGCG GACAGGTATC CGGTAAGCGG CAGGGTCGGA ACAGGAGAGC GCACGAGGGA
5971 GCTTCCAGGG GGAACGCGCT GGTATCTTTA TAGTCTGTC GGGTTTCGCC ACCTCTGACT TGAGCGTCGA
6041 TTTTGTGAT GCTCGTCAGG GGGGCGGAGC CTATGGAATA ACGCCAGCAA CGCGGCCCTT TTACGGTTCC
6111 TGGCCTTTTG CTGGCCTTTT GCTCACATGT TCTTCTCTGC GTTATCCCTT GATTCTGTGG ATAACCGTAT
6181 TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCCGA ACGACCGAGC GCAGCGAGTC AGTGAGCGAG
6251 GAAGCGGAAG AGCGCCCAAT ACGCAAACCG CCTCTCCCGG CGCGTTGGCC GATTCAATTA TGCAGCTGGC
6321 ACGACAGGTT TCCCGACTGG AAAGCGGGCA GTGAGCGCAA OGCAATTAAT GTGAGTTAGC TCACTCATT
6391 GGCACCCAG GCTTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT
6461 CACACAGGAA ACAGCTATGA CCATGATTAC GCCAAGCTCG GAATTAACCC TCACTAAAGG GAACAAAAGC

PstII (6533)

6531 TGCTGCAGGG TCCCTAACTG CCAAGCCCA CAGTGTGCC TGAGGCTGCC CCTTCCTTCT AGCGGCTGCC
6601 CCCACTCGGC TTTGCTTTCC CTAGTTTCAG TTAAGTTCAG TCAGCCAAGG TCTGAAACTA GGTGCGCACA
6671 GAGCGGTAAG ACTGCGAGAG AAAGAGACCA GCTTTACAGG GGGTTTATCA CAGTGCAACC TGACAGTCGT
6741 CAGCCTCACA GGGGGTTTAT CACATTGCAC CCTGACAGT GTCAGCCTCA CAGGGGGTTT ATCAGATGC
6811 ACCCTTACAA TCATTCCATT TGATTACAA TTTTTTTAT CTCTACTGTG OCTAACTTGT AAGTTAAATT
6881 TGATCAGAGG TGTGTTCCTA GAGGGGAAAA CAGTATATAC AGGGTTCAGT ACTATCGCAT TTCAGGCCTC
6951 CACCTGGGTC TTGGAATGTG TCCCCGAGG GGTGATGACT ACCTCAGTTG GATCTOCACA GGTCAAGTG
7021 ACACAAGATA ACCAAGACAC CTCCCAAGGC TACCACAATG GGCCGCCCTC CACGTGCACA TGGCCGGAGG
7091 AACTGCCATG TCGGAGGTGC AAGCACACCT GCGCATCAGA GTCCTTGGTG TGGAGGGAGG GACCAGCGCA
7161 GCTTCCAGCC ATCCACCTGA TGAACAGAAC CTAGGGAAAG CCCCAGTTCT ACTTACACCA GGAAAGGC

Figure 14 continued